Three-position Room Temperature Controller

REV32

with one weekly operating mode including
individual 24-hour modes and three 24-hour modes

Mains-independent room temperature controller featuring straightforward operation and an easy-to-read display.
Three-position controller providing PI control and optimum start control.
Possibility of volume adaptation and control gain.
Choice of three different 24-hour operating modes and one weekly mode including individually adjustable 24-hour modes.

Use

Room temperature control in:

- Single-family and holiday houses
- Apartments and office spaces
- Individual rooms and consulting rooms
- Commercially used spaces

For the control of electric actuators with a running time of **120…150 seconds**, suitable for use with stroke and rotary type actuators.

Functions

- PI control
- Adjustment of integral action time (volume adaptation)
- Adjustment of control gain (adaptation of heating output)
- Weekly time switch
- Remote operation
- Preset 24-hour operating modes
- Override button
- Reset function
- Setting check
- Calibration of detector
- Holiday mode
- Frost protection function
- Minimum limitation of set point
- Optimum start control in the morning (P.1)

Type summary

Room temperature controller with weekly time switch and remote operation connection facility	**REV32**

Suitable equipment

Electric actuators for three-position control with a running time of **120…150 seconds**.

Ordering

When ordering, please give type reference according to "Type summary".

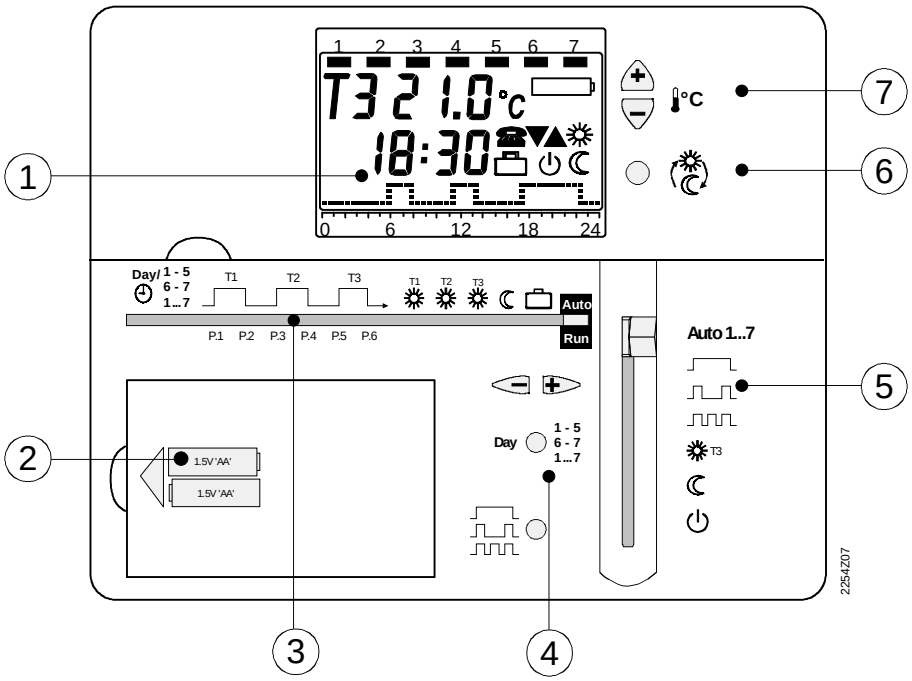
Delivery

The unit is supplied with batteries.

Mechanical design

Plastic casing with an easy-to-read display, easily accessible operating elements and removable cover. The removable battery compartment allows straightforward replacement of the two 1.5 V alkaline batteries. The base plate can be fitted to all commercially available recessed conduit boxes or directly on the wall and can then be wired before fitting the controller to it. The casing accommodates the electronics with the three DIP switches. The potential-free changeover contact and the connection terminals are located on the base plate.

Display and operating elements



① **Display**

- Standby with frost protection
- Normal temperature
- Economy temperature
- 1 . . . 7 Block/day
- Switching pattern with flashing time cursor
- Actuator opening
- Actuator closing
- Remote operation active
- Holiday mode
- Battery change
- 18:30 Time of day
- 1 Weekday
- 21.0 °C Room temperature (measured)
- T3 Active normal temperature

② **Battery compartment**

- Two alkaline batteries 1.5V (AA)

③ **Setting slider**

- Day/ Time/weekday
- 1 - 5 / 6 - 7 / 1...7 Switching pattern allocation Block/day
- T1 T2 T3 P.1 P.2 P.3 P.4 P.5 P.6 Switching times P.1…P.6
- T1 T2 T3 Normal temperatures T1…T3
- Economy temperature
- Holiday mode
- Auto Run Operating position

④ **Setting buttons**

- Day 1 - 5 6 - 7 1...7 Block/day button
- Switching pattern button
- Set values lower
- Set values higher

⑤ **Operating mode selector**

- **Auto 1...7** Weekly mode with up to three heating periods per day
- 24-hour mode with one heating period
- 24-hour mode with two heating periods
- 24-hour mode with three heating periods
- T3 Continuous normal temperature
- Continuous economy temperature
- Standby with frost protection

⑥ **Override button**

⑦ **Warmer/colder buttons**

Operating modes

Auto 1..7	Weekly mode with up to three heating periods per day
⎍	24-hour mode with one heating period
⎍⎍	24-hour mode with two heating periods
⎍⎍⎍	24-hour mode with three heating periods
☼T3	Continuous normal temperature
☾	Continuous economy temperature
⏻	Standby with frost protection

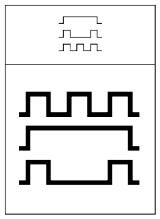
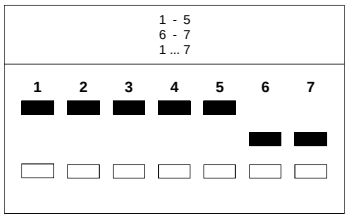
Set points

	Factory setting	Setting range	Setting range with limitation
☼T1	19 °C	3…29 °C	16…29 °C
☼T2	20 °C	3…29 °C	16…29 °C
☼T3	21 °C	3…29 °C	16…29 °C
☾	16 °C	3…29 °C	16…29 °C

In the weekly and individual 24-hour operating modes, the set points are freely adjustable.

Weekly time switch

To simplify the entry of switching times, there are three different switching patterns available. These can be assigned to the respective weekdays 1…5 and weekend days 6…7 in the form of blocks. This means that with each block, the respective switching times and room temperatures need to be adapted only once.

Switching patterns	Blocks
	

It is also possible to make individual entries of the individual days 1…7.

Override button

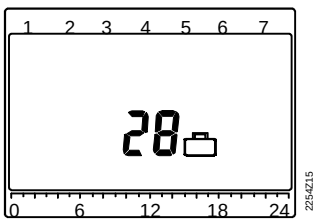
Manual changeover between normal and economy temperature. This manual action will automatically be reset when the next switching action takes place or when the operating mode changes.

Setting check

When pressing the button Day ○ 1 - 5 / 6 - 7 / 1...7 in the weekly mode **Auto 1..7**, the selected switching patterns of the individual days will be displayed, one by one, each for three seconds.

Holiday setting

Entry of start and duration of the holiday period. In that case, the controller will switch to economy mode ☾ at the beginning of the holiday period. The display shows this, with the **holiday symbol** 💼 and the number of **remaining** days in the holiday period, as follows:

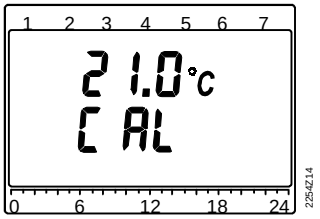


On completion of the holiday period, the controller will resume the selected operating mode (e.g. **Auto 1..7**).

Calibration of detector

If the displayed room temperature does not agree with the temperature measured, the temperature detector can be recalibrated.

When the setting slider is set to the position Day, press button ⊕. Then, the display will change as follows:

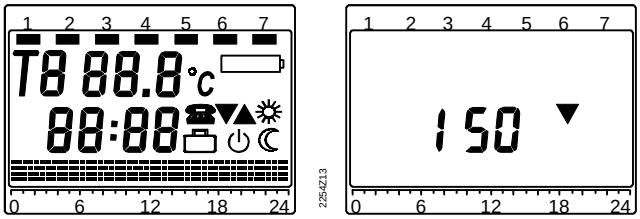


By pressing button ⊕ or ⊖, the temperature can be changed in increments of 0.2 °C (max. ±2 °C). On completion of the readjustment, the setting slider must be reset to the Auto/Run position.

Reset

When pressing buttons ⊖ ⊕ and ⊕ simultaneously, all individual settings will be reset to their standard values.

Resetting also serves as a display check:



The unit's initialisation time is about 150 seconds.

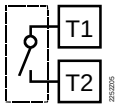
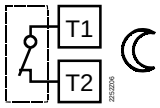
After a reset, all individual settings such as time, day, switching times, etc., must be re-entered.

Remote operation

With the help of a suitable remote operation unit, the **REV32** controller can be switched to the economy temperature set for operating mode ☾. Changeover takes place through the making of a **potential-free contact** connected to terminals T1 and T2.

The display indicates this with the symbol ☎.

After the contact opens, the selected operating mode becomes active again.

Operation according to the settings made on the controller	Continuous economy temperature
	

Suitable remote operation units are:
Telephone modem, manual switch, window switch, presence detector, central unit, etc.

Technical features

DIP switch 1

OPTIMUM P.1		1	2	3
OFF				
☀	1/4h / °C			
☾	1/2h / °C			
P.1	1h / °C			

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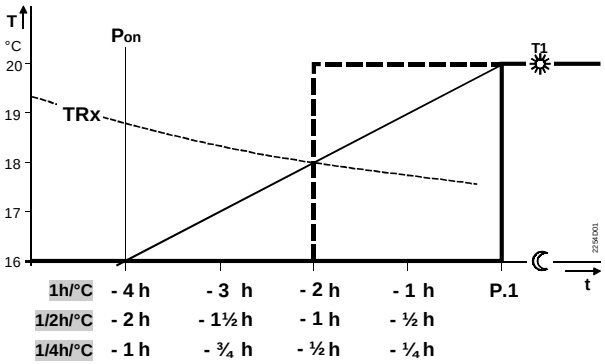
Optimum start control

Optimisation brings forward the switch-on point P.1 such that the selected set point will be reached at the desired time. The setting depends on the type of control system, that is, on heat transmission (piping system, radiators), building dynamics (building mass, insulation), and heating output (boiler capacity, flow temperature). The optimisation is set with DIP switch 1 as follows:

OFF	No effect
1/4h/°C	For fast controlled systems
1/2h/°C	For medium controlled systems
1h/°C	For slow controlled systems



T Temperature (°C)

t Forward shift of switch-on point (h)

TR_x Actual value of room temperature

P_{on} Starting point for optimum on

DIP switch 2

	1	2	3
☾☀ 3...29°C			
☾☀ 16...29°C			
⏻ 5°C			
⏻ 3°C			
⏻ 10°C			

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Limitation of set points

When using minimum limitation of the set point to 16 °C, undesired heat transfers to neighbouring flats is prevented in buildings that have several heating zones. The function can be selected with DIP switch 2.

Frost protection

Frost protection is adjustable with DIP switch 2, either 3 °C, 5 °C, or 10 °C.

DIP switch 3

VOLUME	1	2	3	4
Medium (80 min.)				
Small or Fan Coil (40 min.)				
Large (160 min.)				
Heating Output				
Normally sized				
Over sized				
Tightly sized				

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Volume adaptation (Volume)

With DIP switch 3, the integral action time can be adjusted as follows:

- Normally sized controlled systems (80 min.)
- Fast controlled systems (40 min.)
  e.g. in the case of small rooms, light-weight radiators, etc.
- Slow controlled systems (160 min.)
  e.g. in the case of large rooms, heavy radiators, etc.

Control gain (Heating Output)

With DIP switch 3, the control gain can be adjusted as follows:

- Normally sized heating output (Normally sized)
- Oversized heating output (Over sized),
  e.g. in the case of high boiler or flow temperatures
- Undersized heating output (Tightly sized)
  e.g. in the case of low boiler or flow temperatures

Technical data

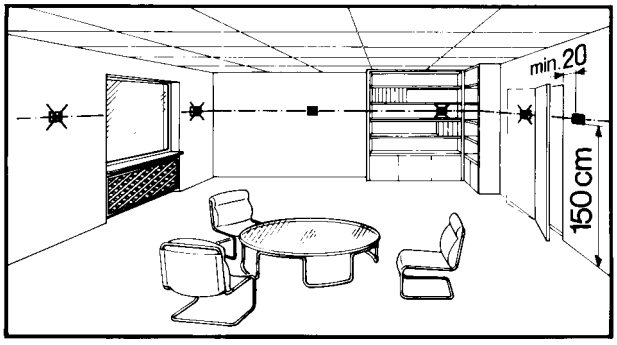
Operating voltage	DC 3 V
Batteries (alkaline AA)	2 x 1.5 V
Battery life	approx. 2 years
Backup for battery change	1 min max.
CE conformity to	
EEC directive	89/336/EEC
low voltage directive	73/23/EEC
Switching capacity of relays	
Voltage	AC 24…250 V
Current	5 (2) A
Measuring element NTC 68 kΩ	at 25 °C
Measuring range	0…40 °C
Time constant	max. 2 min
Set point setting range	
Normal temperature	3…29 °C
Economy temperature	3…29 °C
Set point for frost protection	
Adjustable	3 / 5 / 10 °C
Factory setting	5 °C
Resolution of settings and display	
Set points	0.2 °C
Switching times	10 min
Measurem. of actual value	0.1 °C
Display of actual value	0.2 °C
Time display	1 min

Insulation class to EN 60730-1	II
Degree of protection to EN 60529	IP30
Electromagnetic compatibility	
Immunity	EN 50082-2
Emissions	EN 50081-1
Perm. ambient temperature	
Operation	3…35 °C
Storage	-25…+60 °C
Perm. ambient humidity to DIN 40040	G
Integral action time (volume adaptation)	
Adjustable	80 / 40 / 160 min
Factory setting	80 min
Control gain (heating load adaptation)	
Adjustable	0.5 / 0.25 / 1
Factory setting	0.5
Weight	0.24 kg
Colour	White RAL9003

Notes

Engineering

- The room temperature controller should be fitted in the main living room.
- The place of installation should be chosen so that the sensor can capture the room temperature as accurately as possible, without being affected by direct solar radiation or other heating or cooling sources.
- Mounting height is approx. 1.5 m above the floor.
- Only actuators with a running time of 120…150 seconds should be used.
- The unit can be fitted to most commercially available recessed conduit boxes or directly on the wall.



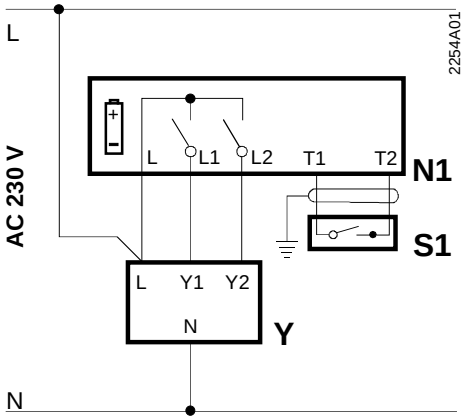
Fitting and installation

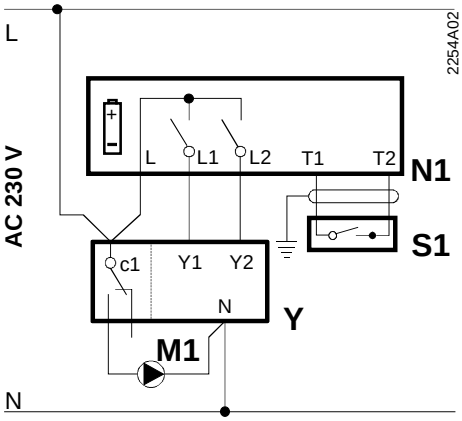
- When installing the room temperature controller, the base plate must first be fitted and wired. Then, the unit is engaged at the top, swung downward and secured with a screw.
- For more detailed information, please refer to the installation instructions supplied with the controller.
- For the electrical installation, the local safety regulations and standards must be complied with.
- The remote operation contact T1 / T2 must be wired separately, using a separate shielded cable.

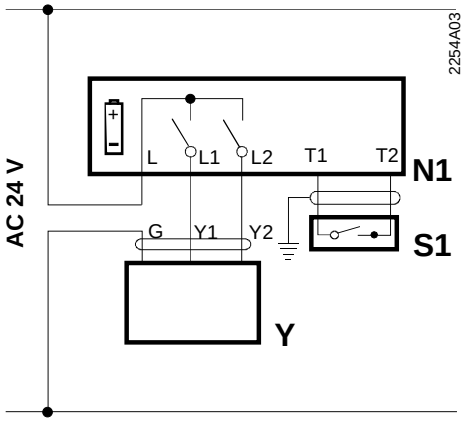
Commissioning

- The battery transit tab, which prevents inadvertent operation of the unit during transport and storage, must be removed from the batteries.
- The control characteristics can be changed with the help of the DIP switches located at the rear of the unit. For detailed information, please refer to the commissioning instructions.
- If the reference room is equipped with thermostatic radiator valves, they must be set to their fully open position.
- If the displayed room temperature does not agree with the measured room temperature, the temperature detector should be recalibrated (please refer to "Calibration of detector")

Connection diagrams

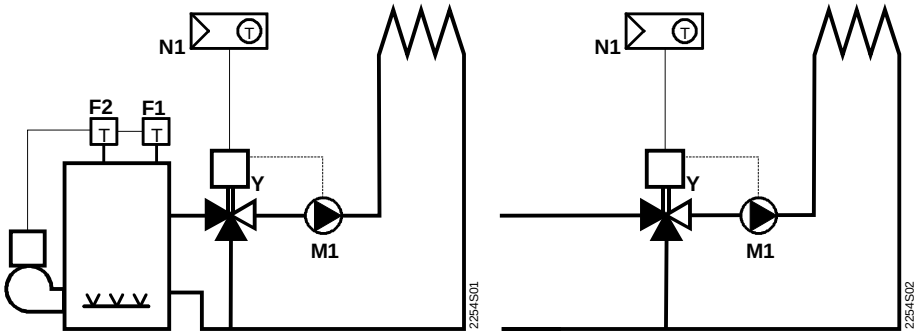






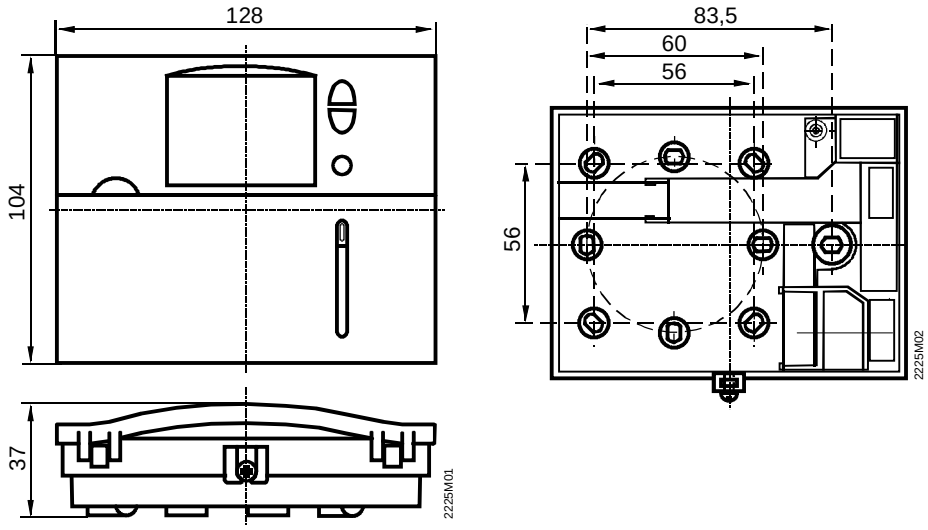
c1	Auxiliary switch	S1	Remote operation unit (potential-free)
L	Live	T1	Signal "remote operation"
L1	Positioning signal "opening", AC 24…250 V / 5 (2) A	T2	Signal "remote operation"
L2	Positioning signal "closing", AC 24…250 V / 5 (2) A	Y	Motorised valve
M1	Circulating pump	Y1	Positioning signal "opening"
N	Neutral	Y2	Positioning signal "closing"
N1	REV32 controller		

Application examples



F1	Control thermostat	N1	REV32 controller
F2	Manual reset safety limit thermostat	Y	Motorised three-port valve
M1	Circulating pump		

Dimensions



Subject to alteration